表紙ほか

SPECIAL CONTRIBUTIONS

OF THE

GEOPHYSICAL INSTITUTE

KYOTO UNIVERSITY

NO. 4

DECEMBER 1964

KYOTO

Errata

Special Contributions of the Geophysical Institute, Kyoto University, No. 4, (December 1964)

Page	*Line*	*For*	*Read*
3	22	$\cos(3T+2h-3s+3\xi-\nu)$	$\cos(3T+3h-3s+3\xi-3\nu)$
14	23	facting	facing
22	1 in caption of Fig. 3	a eas	areas
29	9	Leng-peried Rayleigh waves R_3 and R_4 read	Long-period Rayleigh waves R_3 and R_4 were read
29	11	1 200 km	1,200 km
29	17	anlysis	analysis
63	21	Station	station
65	19	(X_i, Y_i, Z)	(X_i, Y_i, Z_i)
65	21	$\cdots+(Z_i-Z_i)^2=\cdots$	$\cdots+(Z_i-Z)^2=\cdots$
73	8	ditant	distant
89	35	stuffs	staffs
97	15	6111- 1 Jan. 4	6111- 1 Nov. 4
97	16	6111- 4 Jan. 27	6111- 4 Nov. 27
97	40	6110- 3 Nov. 13	6110- 3 Oct. 13
101	11	4.7 km	3.7 km
107	30	*p s*	*p*~*s*
107	31	*p*- and *s*-portions	*s*- and *p*-portions
109	2 in caption of Fig. 4	4(a) indicates the *p*-portion and 4(b) the *s*-portion.	4(a) indicates the *s*-portion and 4(b) the *p*-portion.
130	24	in form of a stational wave form near the crater	in the form of a stational wave from near the crater
130	32	the crater	the active crater
133	9	the normal mode of Rayleigh waves	the normal mode of waves
134	17	"Ishimoto-Iida's relation	"Ishimoto-Iida's relation"
135	6	the crater	the active crater
135	12	B-type one	B-type
138	38	Phinney, R. and A. Phinney	Phinney, R. A.
142	33	downwards	downward

Page	*Line*	*For*	*Read*
143	3	downwards	downward
146	20–21	downwards	downward
147	11	supper	upper
151	4	$z=D-h$, itfollo ws	$z=D-h_E$, it follows
164	32	$\cdots=C^2\varepsilon_i^2$	$\cdots=c^2\varepsilon_i^2$
164	33	$C^2=\frac{1}{2}p\mu V$	$c^2=\frac{1}{2}p\mu V$
176	ordinate in Fig. 16	$\times 10$	$\times 10^{-4}$
178	28	Boltzman	Boltzmann

TO THE MEMORY OF

PROFESSOR EIICHI NISHIMURA

Eiichi NISHIMURA

1907-1964

Memory of Professor Eiichi NISHIMURA

Professor Eiichi Nishimura was born on February 4, 1907, in Kyoto, and passed away on March 19, 1964. He entered Kyoto University in 1928, after graduating from Third High School in the same year. In 1931, he graduated from Kyoto University, getting a degree of Bachelor of Science in the special study of geodesy and seismology. Throughout a long period of over thirty years from that time, Professor Nishimura exerted himself in Kyoto University both for the development of research work and of teaching. The research fields of Professor Nishimura were extremely wide, covering geodesy, seismology, volcanology and geomagnetism. We can say, therefore, that his interests and research works extended over almost all problems related to the solid earth. It seems convenient to divide Professor Nishimura's research activity into four periods. For about five years after his graduation in 1931, he studied and mastered the fundamental thought and method concerning how to attack the geophysical problems in various fields above-mentioned, under the guidance of the late Honorary Professor T. Shida, the Honorary Professor M. Hasegawa and Honorary Professor K. Sassa. This experience, the cooperative work with these excellent scholars in their respective fields, is believed to have made a great contribution to Professor Nishimura's own research activity in later years. Also in this period he studied the activity of the Volcano Aso in relation to the volcanic tremors.

In 1936, Porfessor Nishimura was appointed an assistant at the Geophysical Institute. The nine years therefrom, up to 1945 when he was promoted to an assistant professor, should be called the second period, in which Professor Nishimura devoted himself to the problem of the earth tides.

The articles successively worked out in this period, "On Earth Tides", No. 1 to No. 7, are certainly imperishable contributions, and in fact a value of "Diminishing Factor", obtained from his superior observations in former Manchuria in 1940 and 1941, has been cited as "Nishimura's value" by many investigators in the world. By virtue of this work, he was early recognized all over the world as one of the authorities in this field, and the degree of Doctor of Science was conferred on him in 1942.

He was appointed assistant professor in the Geophysical Institute in 1945, and professor of geodesy and seismology in 1951. We may call the 16 years from 1945 to 1961 the third period of Professor Nishimura's career.

He was extremely busy and active in this period, both in research work and in education. On the one hand, he was an excellent teacher, more than twenty young research scholars having been brought up under his guidance and direction in various fields of geodesy, seismology and geomagnetism.

This fact may suggest Professor Nishimura's broad outlook and superior ability over wide areas of geophysics. On the other hand, Professor Nishimura energetically guided the research works in his own laboratory in cooperation with his colleagues and staff members. These works are ultimately related to a final problem, namely, the forecasting of earthquake-occurrence. Professors Sassa and Nishimura certainly were two pioneers in the study of this problem, which is particularly serious for Japan. They have bravely pushed forward this difficult and troublesome work. The first station to observe the crustal deformation was founded early in 1937, for the purpose of detecting any relation between the crustal deformation and earthquake-occurrence. Their efforts were steadily continued, bringing about many fruitful results. Now, stations of this kind amount to more than twenty and many interesting phenomena have been found out concerning the above relation. The so-called "Research Group for Earthquake-Forecasting Project" established in 1961 by the seismologists and geodetists in Japan was greatly indebted to these two professors for its realization.

The last three years, from 1961 to 1964, were a period in which Professor Nishimura's efforts were directed toward the application of fundamental works so far carried out on the earthquake-occurrence to a realization movement. First, Professor Nishimura made every effort for the establishment of the above Research Group as one of the most powerful promoters.

On the other hand, he asserted the necessity for international collaboration to develop the study of earthquake-occurrence. His attempts were set in the right direction, when in 1962 he visited Central and South America and promised to cooperate in the observation of earthquake and crustal deformation with the researchers in three countries, Chile, Peru, and Mexico. Unfortunately Professor Nishimura did not live to see the commencement of this plan, but we believe this project will be continued and successfully carried out by his successors.

During the same years, a tendency of collaboration between Japan and the United States on various problems in seismology and geodesy had become stronger and stronger. The first conference by the top-class researchers in both countries regarding the foretelling of earthquake-occurrence was planned to be held at Kyoto University on March 19, 1964. It is to be greatly regretted that, just on the same day, Professor Nishimura passed away without seeing the meeting which had been one of his greatest hopes.

Professor Nishimura held many official posts and was a member of many committees. In Kyoto University, he was a member of the Council of Kyoto University, Director of Disaster Prevention Research Institute, Director of Abuyama Seismological Observatory, Director of Aso Volcanological Laboratory and Director of Kamigamo Geophysical Observatory, he was a member of the Geodetic Commission,

and the Committee of Geophysical Research Connection in Science Council of Japan. Thus, Professor Nishimura was one of the leaders in Japan not only in seismology but also generally in geophysics, and moreover, his great activity had been strongly counted upon for the development of international interchange and collaboration.

Nine months have already passed away since Professor Nishimura's death. His successors are about to rise from the depth of sadness and advance to carry out his intention.

The soul of Professor Nishimura! Please protect our future and guide us in the path of righteousness.

December 1964

by T. Ichinohe and Y. Kishimoto

CONTENTS

Memory of Professor Eiichi NISHIMURA i

Izuo OZAWA: On Observations of the Ter-Diurnal Component of the Earth's Tidal Strain 1

Ichiro NAKAGAWA: On the M_1-Component Obtained by Gravimetric Tidal Observation (Screening of Gravitational Forces) 9

Yutaka TANAKA: Relation Between Crustal and Subcrustal Earthquakes Inferred from the Mode of Crustal Movements 19

Tatsuhiko WADA, Hiroyasu ONO, and Tamotsu FURUZAWA: Source-Mechanism of the Chilean Earthquake from Spectra of Long-Period Surface Waves 29

Michio OTSUKA: Study of Focal Mechanism by the Analysis of Seismic Waves of S-Type 37

Yoshimichi KISHIMOTO, Michio HASHIZUME, Kazuo OIKE, and Kazuo MINO: Some Properties of Microearthquakes in the Western Part of Kinki District (Preliminaries) 51

Kennosuke OKANO and Isamu HIRANO: Micro-Earthquakes Occurring in the Vicinity of Kyoto (1) 63

Michio HASHIZUME and Masao NAKAMURA: On the Seismic Wave Energy and the Efficiency Observed in the First Kurayoshi Explosion 75

Chōrō KITSUNEZAKI: Determination of Seismic Anisotropy of Metamorphic Rocks in Natural Conditions 83

Tatsuhiko WADA and Kosuke KAMO: A Simplified Model of Upper Crust from Seismic Wave Velocities at Volcano Aso 91

Sōji YOSHIKAWA, Tatsuhiko WADA, and Tamotsu FURUZAWA: Application of Analog-Digital Converter for Seismic Data 105

Ryozaburo YAMAMOTO: On Movement of the Tropical Cyclone 111

Yasushi MITSUTA: A New Floating Evaporimeter 119

Akira KUBOTERA: Volcanic Micro Tremor of the Third Kind 127

Kozo YUHARA: Infiltration into Unsaturated Moist Soil 141

Hikaru WATANABE: On the Sequence of Earthquakes 153